


# Speed of Light Worksheet

9)  $v = 3.00 \times 10^8 \text{ m/s}$   
 $d = 4800 \text{ km} = 4800000 \text{ m}$   
 $t = ?$

$$v = \frac{d}{t} \quad t = \frac{4800000 \text{ m}}{3.00 \times 10^8 \text{ m/s}}$$

$$t = 0.016 \text{ s}$$
 ~~$t = 1.6 \times 10^{-2}$~~

10)  $t = 2.70 \text{ s}$    $v = \frac{d}{t}$   $d = 3.00 \times 10^8 \text{ m/s} (2.70 \text{ s})$   
 $d = ?$   
 $v = 3.00 \times 10^8 \text{ m/s}$   
 $d = 8.10 \times 10^8 \text{ m}$   
 $\text{Reflection} = \frac{d}{2} = \frac{8.10 \times 10^8 \text{ m}}{2} = 4.05 \times 10^8 \text{ m}$

11)  $d = 1.00 \text{ km} = 1000 \text{ m}$   
 $v = 3.00 \times 10^8 \text{ m/s}$   
 $t = ?$

$$v = \frac{d}{t} \quad t = \frac{1000 \text{ m}}{3.00 \times 10^8 \text{ m/s}}$$

$$t = \frac{d}{v} \quad t = 3.33 \times 10^{-6} \text{ s}$$

13)  $d = 8.0 \times 10^{10} \text{ m}$   
 $v = 3.00 \times 10^8 \text{ m/s}$   
 $t = ?$

$$v = \frac{d}{t} \quad t = \frac{8.0 \times 10^{10} \text{ m}}{3.00 \times 10^8 \text{ m/s}}$$

$$t = \frac{d}{v} \quad t = 266.6 \text{ s}$$

$$t \approx 270 \text{ s}$$

14)  $t = ?$   
 $d = 5.9 \times 10^9 \text{ km} = 5.9 \times 10^{12} \text{ m}$   
 $v = 3.00 \times 10^8 \text{ m/s}$

$$v = \frac{d}{t} \quad t = \frac{5.9 \times 10^{12} \text{ m}}{3.00 \times 10^8 \text{ m/s}}$$

$$t = \frac{d}{v} \quad t = 19666.6 \text{ s}$$

$$t \approx 2.0 \times 10^4 \text{ s}$$

15) At end

16)  $t = ?$   
 $d = 9.18 \times 10^7 \text{ km} = 9.18 \times 10^{10} \text{ m}$   
 $v = 3.00 \times 10^8 \text{ m/s}$

$$v = \frac{d}{t} \quad t = \frac{9.18 \times 10^{10} \text{ m}}{3.00 \times 10^8 \text{ m/s}}$$

$$t = \frac{d}{v} \quad t = 306 \text{ s}$$

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Worksheet

17) a)  $t = 4.03 \text{ h} = 14508 \text{ s}$     $v = \frac{d}{t}$     $d = (3.00 \times 10^8 \text{ m/s})(14508 \text{ s})$   
 $v = 3.00 \times 10^8 \text{ m/s}$     $d = vt$     $d = 4.3524 \times 10^{12} \text{ m}$   
 $d = ?$     $d \approx 4.35 \times 10^{12} \text{ m}$

18)

$d = 5.9 \times 10^{12} \text{ m} - 1.50 \times 10^{11} \text{ m} - 4.35 \times 10^{12} \text{ m} = 1.4 \times 10^{12} \text{ m}$   
 $t = ?$   
 $v = 3.00 \times 10^8 \text{ m/s}$

$v = \frac{d}{t}$   
 $t = \frac{d}{v}$   
 $t = \frac{1.4 \times 10^{12} \text{ m}}{3.00 \times 10^8 \text{ m/s}}$   
 $t = 4666.6 \text{ s}$   
 $t \approx 4700 \text{ s}$

19)  $t = ?$

$d = 7.783 \times 10^8 \text{ km}$   
 $= 7.783 \times 10^{11} \text{ m}$   
 $v = 3.00 \times 10^8 \text{ m/s}$

$v = \frac{d}{t}$   
 $t = \frac{d}{v}$   
 $t = \frac{7.783 \times 10^{11} \text{ m}}{3.00 \times 10^8 \text{ m/s}}$   
 $t = 2594.3 \text{ s}$   
 $t \approx 2590 \text{ s}$

12)  $t = 8.33 \text{ min} = 499.8 \text{ s}$     $v = \frac{d}{t}$   
 $d = ?$     $d = vt$   
 $v = 3.00 \times 10^8 \text{ m/s}$

$d = (3.00 \times 10^8 \text{ m/s})(499.8 \text{ s})$   
 $d = 1.4994 \times 10^{11} \text{ m}$   
 $d \approx 1.50 \times 10^{11} \text{ m}$

$$15) d = ?$$

$$t = 138 \text{ s}$$

$$v = 3.00 \times 10^8 \text{ m/s}$$

$$v = \frac{d}{t}$$

$$d = vt$$

$$d = (3.00 \times 10^8 \text{ m/s})(138 \text{ s})$$

$$d = 4.14 \times 10^{10} \text{ m}$$

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